Amendments to the Claims:

The following listing of claims replaces all prior listings of claims:

Listing of Claims:

Claims 1-7 canceled.

8. (Currently Amended) ~~The method in accordance with claim 7,~~ A computer-implemented method of reducing redundancy within a data model in a database, wherein the data model is represented by at least one table, the method comprising:

determining a number of distinct values of partial keys in a table, wherein each partial key represents at least one row in the table;

reordering one or more columns of the table by cardinality of partial keys, wherein the cardinality of a partial key represents a number of distinct values of the partial key;

determining whether pairs of partial keys are functionally dependent, each of the pairs comprising a first partial key and a second partial key; and

eliminating one or more columns having functional dependencies from the table;

wherein partial key K(i) comprises a partial key with an index i and a value Kri for a tuple t(r) in row with index r; wherein the number of distinct values of K(i) comprises cardinality |K(i)|;wherein determining whether pairs of partial keys are functionally dependent ~~further~~ comprises defining function F from each partial key to every other partial key to its right in a reordered table for each row in table T [[;]] and determining a functional dependency exists when the function F(Kri) = Krj is the same function for each tuple t(r) in the table for values of index i from 1 to (d − 1) and for values of j from (i +1) to d; and wherein determining whether pairs of partial keys are functionally dependent for each i from 1 to (d − 1) and j from (i + 1) to d comprises:

setting the flag fd to true;

for each tuple t in T, determining whether F(Kri) is defined, wherein F(Kri) is set equal to Krj upon determining that F(Kri) is not defined;

looping through the tuples t in T; and

generating a report indicating that column i is functionally dependent on column j if flag fd is true after the looping through the tuples t in T.

Claim 9 canceled.

10. (Currently Amended) ~~The method in accordance with claim 9,~~ A computer-implemented method of reducing redundancy within a data model in a database, wherein the data model is represented by at least one table, the method comprising:

determining a number of distinct values of partial keys in a table, wherein each partial key represents at least one row in the table;

reordering one or more columns of the table by cardinality of partial keys, wherein the cardinality of a partial key represents a number of distinct values of the partial key;

determining whether pairs of partial keys are functionally dependent, each of the pairs comprising a first partial key and a second partial key;

eliminating one or more columns having functional dependencies from the table; and

placing the one or more eliminated columns into a separate table so that the column with a highest cardinality is in the leftmost position, and the column with the lowest cardinality is in the rightmost position;

wherein partial key K(i) comprises a partial key with an index i and a value Kri for a tuple t(r) in row with index r; wherein the number of distinct values of K(i) comprises cardinality |K(i)|; wherein the tuple t comprises k key figures and d partial keys K(1) to K(d); wherein a table T comprises n tuples and d+k columns; wherein the n tuples comprise rows; wherein a function F(x) = y comprises a mapping between partial keys x and y in a same tuple; wherein a flag fd comprises Boolean values of true or false indicative of whether a value of the function F is defined; wherein determining whether pairs of partial keys are functionally dependent comprises defining function F from each partial key to every other partial key to its right in a reordered table for each row in table T and determining a functional dependency exists when the function F(Kri) = Krj is the same function for each tuple t(r) in the table for values of index i from 1 to (d − 1) and for values of j from (i +1) to d; wherein when a tuple t is in the table T and F(Kri) is not equal to Krj, a functional dependency does not exist between columns i and j; and wherein determining whether pairs of partial keys are functionally dependent for each i from 1 to (d − 1) and j from (i + 1) to d comprises:

setting the flag fd to true;

for each tuple t in T, determining whether F(Kri) is defined, wherein F(Kri) is set equal to Krj upon determining that F(Kri) is not defined;

looping through the tuples t in T; and

generating a report indicating that column i is functionally dependent on column j if flag fd is true after the looping through the tuples t in T.

11.   (Previously Presented) The method in accordance with claim 10, wherein determining whether F(Kri) is defined comprises:

upon determining that F(Kri) is defined, determining whether F(Kri) is equal to Krj, wherein determining that F(Kri) is equal to Krj permits looping through the tuples t in T, and wherein determining that F(Kri) is not equal to Krj comprises:

concluding that K(i) is not functionally dependent on K(j);

setting flag fd to false; and

breaking the looping through the tuples t in T.

Claims 12-15 canceled.

16.   (Currently Amended) ~~The method in accordance with claim 15~~ A computer-implemented method of reducing redundancy within a data model in a database, wherein the data model is represented by at least one table, the method comprising:

determining a number of distinct values of partial keys in a table, wherein each partial key ~~represents~~ identifies at least one row in the table;

reordering one or more columns of the table by cardinality of partial keys, wherein the cardinality of a partial key represents a number of distinct values of the partial key;

determining whether a first partial key of the partial keys and a second partial key of the pairs of partial keys are functionally dependent, each of the pairs comprising ~~a~~ the first partial key and the second partial key comprising a pair;

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<u>eliminating one or more columns having functional dependencies from the table; and</u>

<u>creating an exception list for the pairs of partial keys that are not functionally dependent;</u>

<u>wherein partial key K(i) comprises a partial key with an index i for a tuple t; wherein the number of distinct values of K(i) comprises cardinality |K(i)|; wherein the tuple t comprises k key figures and d partial keys K(i) for i from 1 to d; wherein a table T comprises n tuples and (d + k) columns; wherein the n tuples comprise rows; wherein a function F(x) = y comprises a mapping between partial keys x and y in a same tuple; wherein the exception list for the pairs of partial keys that are not functionally dependent comprises partial keys pairs that do no fit a functional dependency defined for other tuples in the table; wherein the exception list represents errors in the one or more data models; wherein the determining whether pairs of partial keys are functionally dependent comprises defining function F from each partial key to every other partial key to its right in a reordered table for each row in table T and determining a functional dependency exists for i from1 to (d − 1) and j from (i +1) to d; wherein the function F(Kri) = Krj is the same function for each tuple t(r) in the table; and</u> wherein when for i <s>from1</s> <u>from 1</u> to (d − 1) and j from (i +1) to d the function F(Kri) = Krj is not the same function for each tuple t(r) in the table, there exists one or more mappings from Kri to Krj for different values of r; and wherein different values of r are related to different tuples t(r), and upon determining multiple mappings, checking whether one or more entries in set {Krj} are similar for each t(r).

17.   (Previously Presented) The method in accordance with claim 16, wherein a similarity is defined with any one of a similarity function and a data cleansing function.

18.   (Previously Presented) The method in accordance with claim 17, wherein if a subset of {Krj} is similar, compress the subset to a single value x to compress multiple mappings to a single functional dependency, wherein if a subset of {Krj} is not similar, create an exception list for non-similarities, and wherein the creating

an exception list for non-similarities comprises mapping a row number r for tuple t(r) of each dissimilar entry Krj to a corresponding value Kri.

19.   (Previously Presented) The method in accordance with claim 18, further comprising rewriting one or more queries against the table to check the exception list before accessing function F, wherein if no entry exists for the current row in that list, use the functional dependency defined by F.

20.   (Currently Amended) An article comprising a machine-readable medium storing instructions operable to cause a machine to perform operations comprising:

reducing redundancy within a data model in a database, wherein the data model is represented by at least one table, the reducing redundancy comprising:

determining a number of distinct values of partial keys in a table, wherein each partial key represents identifies at least one row in the table;

reordering one or more columns of the table by cardinality of partial keys, wherein the cardinality of a partial key represents a number of distinct values of the partial key;

determining whether a first partial key of the partial keys and a second partial key of the pairs of partial keys are functionally dependent, each of the pairs comprising a the first partial key and the second partial key comprising a pair; [[and]]

eliminating one or more columns having functional dependencies from the table; and

placing the one or more eliminated columns into a separate table so that the column with a highest cardinality is in the leftmost position, and the column with the lowest cardinality is in the rightmost position;

wherein partial key K(i) comprises a partial key with an index i and a value Kri for a tuple t(r) in row with index r; wherein the number of distinct values of K(i) comprises cardinality |K(i)|; wherein the tuple t comprises k key figures and d partial keys K(1) to K(d); wherein a table T comprises n tuples and d+k columns; wherein the n tuples comprise rows; wherein a function F(x) = y comprises a mapping between partial keys x

and y in a same tuple; wherein a flag fd comprises Boolean values of true or false indicative of whether a value of the function F is defined; wherein determining whether pairs of partial keys are functionally dependent further comprises defining function F from each partial key to every other partial key to its right in a reordered table for each row in table T and determining a functional dependency exists when the function F(Kri) = Krj is the same function for each tuple t(r) in the table for values of index i from 1 to (d − 1) and for values of j from (i +1) to d; wherein when a tuple t is in the table T and F(Kri) is not equal to Krj, a functional dependency does not exist between columns i and j; and wherein determining whether pairs of partial keys are functionally dependent for each i from 1 to (d − 1) and j from (i + 1) to d comprises:

setting the flag fd to true;

for each tuple t in T, determining whether F(Kri) is defined, wherein F(Kri) is set equal to Krj upon determining that F(Kri) is not defined;

looping through the tuples t in T; and

generating a report indicating that column i is functionally dependent on column j if flag fd is true after the looping through the tuples t in T.